62. (Amended) The nucleic acid according to claim 15, wherein said stringent conditions are washing at 55°C in an aqueous low salt buffer comprising 0.2 X SSC.

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63. (Amended) The nucleic acid according to claim 52, wherein said stringent conditions are washing at 60°C in an aqueous low salt buffer comprising 0.2 X SSC.

REMARKS

In the Office Action dated January 14, 2003, claims 1-17, 19, 20, 46, 47, and 58-66, in the above-identified U.S. patent application were rejected. Reconsideration of the rejections is respectfully requested in view of the above amendments and the following remarks.

Claims 1-17, 58 and 61 were provisionally rejected under the judicially created doctrine of obviousness type double patenting as unpatentable over claims 1, 3, 4, 7, 8, 10 and 12 of copending application no. 09/463,402. Applicants respectfully point out that application no. 09/463,402 has a later filing date than the present invention and thus issuing the present application as a patent will not result in an unjustified extension of the rights granted in a patent issuing from application no. 09/463,402. As stated in MPEP §804, II B 1, "Obviousness type double patenting requires rejection of an application claim when the claimed subject matter is not patentably distinct from the subject matter claimed in a commonly owned patent when the issuance of a second patent would provide unjustified extension of the term of the right to exclude granted by a patent". In addition, since the later filed application has been allowed and will likely issue as a patent before the present application, the two way test for obviousness must be applied. The subject matter of

copending application no. 09/463,402 is a later developed improvement of the invention disclosed in the present application. The improvement disclosed in copending application no.

09/463,402 concerns the expression of S-layer proteins in targeted compartments using a signal sequence. The expression of S-layer proteins in specific compartments is not disclosed in the present application and would not have been obvious in view of the disclosure in the present application since the required signal sequences are not described. One skilled in the art could not have predicted that S-layer proteins could be successfully expressed in specific compartments in view of the present application. Thus, the two way test for obviousness has not been met. Applicants point out that the present application and application no. 09/463,402 are related in that the present application dominates application no. 09/463,402 which, as discussed above, is directed to a later developed improvement. However, as stated in MPEP §804, subsection II, domination by itself cannot support a double patenting rejection. In view of the fact that the two way test for obviousness has not been met, applicants request that this rejection be withdrawn.

Claims 1-17, 19, 20, 46, 47 and 58-66 were provisionally rejected under the judicially created doctrine of obviousness type double patenting as unpatentable over claims 1, 3, 5, 7, 8, 10 and 12 of copending application no. 09/463,402 in view of Deblaere et al. As discussed above, application no. 09/463,402, which has a later filing date than the present application, has been allowed and will likely issue as a patent before the present application. Thus, issuing the present application as a patent will not result in an unjustified extension of the rights granted in a patent issuing from application no. 09/463,402. As discussed above, the later filed application is an improvement of the present application and would not have been obvious over the disclosure in the present application in view of Deblaere. Deblaere does not suggest that S-layer proteins can be expressed in targeted compartments. In view of the

above discussion, applicants contend that this provisional rejection is improper and request that it be withdrawn.

Claims 15, 62 and 63 were rejected under 35 USC §102(b) as anticipated by Kuen. Applicants respectfully point out that Kuen does not disclose an isolated full length nucleic acid sequence. Kuen isolated three overlapping fragments which he used to predict the full length nucleic acid sequence as discussed in his summary. Kuen also states that "The 3' end was cloned and expressed in Escherichia coli, whereas the 5' region was amplified from the genome of BsPV72 by the polymerase chain reaction using two overlapping fragments". Thus, Kuen only isolated incomplete fragments and predicted the sequence of the full length nucleic acid sequence. Claims 15, 62 and 63 recite an isolated nucleic acid encoding a full-length, crystalline recombinant S-layer protein and thus are not anticipated by Kuen who did not isolate a full length sequence. In view of this, applicants request that this rejection be withdrawn.

Claims 15, 62 and 63 were rejected under 35 USC §101 as directed to nonstatutory subject matter. These claims have been amended as suggested by the examiner and thus applicants request that this rejection be withdrawn.

Claims 1-17, 19, 20, 46, 47 and 58-66 were rejected under 35 USC §112, second paragraph as indefinite. The claims have been amended to clarify the language found indefinite and applicants request that this rejection be withdrawn.

Applicants respectfully submit that all of claims 1-17, 19, 20, 46, 47, and 58-66 are now in condition for allowance. If it is believed that the application is not in condition for allowance, it is respectfully requested that the undersigned attorney be contacted at the telephone number below.

In the event this paper is not considered to be timely filed, the Applicant respectfully petitions for an appropriate extension of time. Any fee for such an extension together with any additional fees that may be due with respect to this paper, may be charged to Counsel's Deposit Account No. 02-2135.

RESPECTFULLY SUBMITTED,					
NAME AND REG. NUMBER	Monica Chin Kitts, Registration No.: 36,105				
SIGNATURE			*DATE*	7/14/03	
ADDRESS	Rothwell, Figg, Ernst & Manbeck Suite 800, 1425 K Street, N.W.				
CITY	Washington	*STATE*	D.C.	*ZIP CODE*	20005
COUNTRY	U.S.A.	*TELEPHONE*	202-783-6040	*FAX*	202-783-6031

APPENDIX

Marked-Up copy of claims to show amendments:

1.(Thrice Amended) A process for production of a crystalline S-layer protein comprising:

(a) transforming a gram-negative prokaryotic host cell with a full length nucleic acid encoding an S-layer protein selected from the group consisting of

(i) a nucleic acid comprising a nucleotide sequence from position 1 to 3684 of SEQ ID NO:1,

(ii) a nucleic acid comprising a nucleotide sequence ~~corresponding to the nucleic acid of (i) within the scope of the degeneracy of the genetic code~~ which encodes an amino acid sequence according to SEQ ID NO:2, and

(iii) a nucleic acid comprising a nucleotide sequence which hybridizes with at least one of the nucleic acid of (i) or (ii) under stringent conditions;

(b) culturing the host cell under conditions which induce expression of the nucleic acid and production of the corresponding protein, and

(c) isolating the protein from the host cell.

14. (Twice Amended)The process as claimed in claim 13, wherein the nucleic acid encoding the signal peptide comprises

(a) a signal peptide coding region of the nucleotide sequence of SEQ ID NO:1,

(b) a nucleotide sequence ~~corresponding to the nucleotide sequence of (a) within the degeneracy of the genetic code~~ which encodes an amino acid sequence according to SEQ ID NO:2., or

(c) a nucleotide sequence that is at least 80% homologous to at least one nucleotide

sequence of (a) or (b).

15. (Thrice Amended) ~~A~~ An isolated nucleic acid encoding a full-length, crystalline recombinant S-layer protein selected from the group consisting of

(i) a nucleic acid comprising a nucleotide sequence from position 1 to 3684 of SEQ ID NO:1,

(ii) a nucleic acid comprising a nucleotide sequence ~~corresponding to the nucleic acid of (i) within the scope of the degeneracy of the genetic code~~ which encodes an amino acid sequence according to SEQ ID NO:2, and

(iii) a nucleic acid comprising a nucleotide sequence which hybridizes with at least one of the nucleic acid of (i) or (ii) under stringent conditions, wherein the nucleic acid contains at least one peptide or polypeptide-coding insertion within the region encoding the S-layer protein.

59. (Amended) The process according to claim 1, wherein ~~under stringent conditions hybridization is obtainable after~~ said stringent conditions are washing at 55°C in an aqueous low salt buffer comprising 0.2 X SSC.

60. (Amended) The process according to claim 49, wherein ~~under stringent conditions hybridization is obtainable after washing at 60°C~~ said stringent conditions are washing at 60°C in an aqueous low salt buffer comprising 0.2 X SSC.

62. (Amended) The nucleic acid according to claim 15, wherein ~~under stringent~~

~~conditions hybridization is obtainable after~~ said stringent conditions are washing at 55°C in an aqueous low salt buffer comprising 0.2 X SSC.

63. (Amended) The nucleic acid according to claim 52, wherein ~~under stringent conditions hybridization is obtainable after washing at 60°C~~ said stringent conditions are washing at 60°C in an aqueous low salt buffer comprising 0.2 X SSC.